UMB-Config-Tool

Operating Instructions
UMB Configuration Software

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Version 1.7

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Version history:

Document version	Date	Edited by	Description of amendment
1.0	24.01.2007	EES	Taken from Short Instructions V02 and completed
1.1	12.02.2007	EES	System requirements supplemented
1.2	23.02.2007	EES	New screenshots added
1.3	10.02.2009	BR	Adjustments for Software V1.0 (English)
1.4	27.10.2009	BR	Adjustments for Software V1.1 (English)
1.5	08.10.2010	BR	Adjustments for Software V1.3 (English)
1.6	18.02.2011	BR	Integration of new sensors, bugfix heater capacity Ventus-UMB
1.7	08.08.2011	BR	Integration of ARS31PRO Smoothing operator for ft ARS31 adjustable Protocol switching functionality for sensors running in different protocols Coupling of IRS31 and ARS31 integrated Anacon: New sensor CMPx integrated TCP/IP support Centralized settings for WSx energy management

Preface, designated use

The UMB-Config-Tool has been created for configuring, commissioning, maintaining, calibrating and checking Lufft UMB sensors, modules and systems.
It is not designed for reading out and storing data permanently. For the permanent data evaluation Lufft offers the software SmartView3.
The UMB-Config-Tool is single seat software. It is not intended that multiple users use this software from the same directory at the same time.
The UMB-Config-Tool is able to create logfiles. When these files are opened by other programs during the operation of the UMB-Config-Tool, there might occur writing errors (i/o Errors) when the UMB-Config-Tool tries to update them, and the file will not update correctly.
Details to special functions for sensors can be found in the operating instructions of the sensor.

Installation UMB-Config-Tool

Start 'Setup_UMB_Config_xxxxxxx.EXE' and follow the instructions of the installation programme.

The software is installed under 'C:\Lufft\UMB-Config' as standard. In MS-Windows Vista and MS-Windows 7 you must not install the software in the directories C:\Program Files or C:\Program Files (x86) because these directories are specially protected system directories, and the protection does not work well with the normal program function of this tool.
Start the application with 'Start' → 'Programme' → 'Lufft UMB Config' → 'Config Tool'.

Installation paths:

Path	Content
...\Lufft\UMB-Config\	Application and INI files
...\Lufft\UMB-Config\Firmware	Device firmware (mot files)
...\Lufft\UMB-Config\Hexload	Bootloader programme
...\Lufft\UMB-Config\Konfig	Stored device configurations

Copy the current device firmware into the firmware directory prior to installing firmware updates.

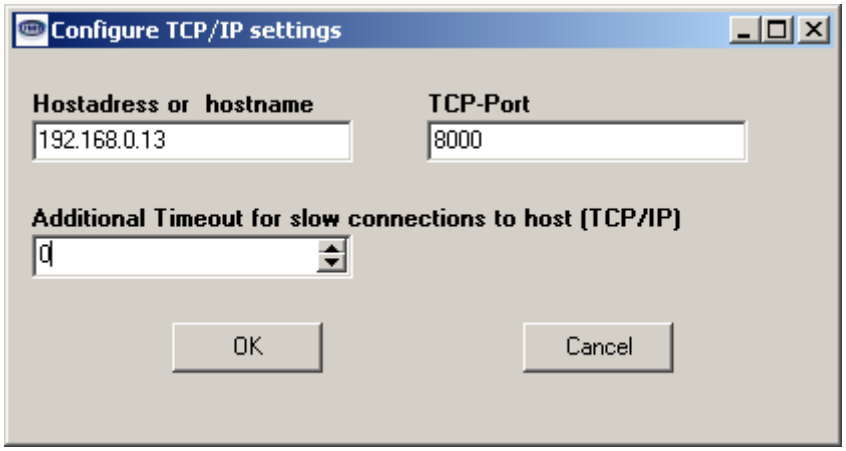
The UMB-Config software can be uninstalled with '...\Lufft\UMB-Config\UNWISE.EXE'.

System requirements

Windows 2000 / XP / Vista / 7
10 MB free hard disk capacity
A free serial interface (COM) for configuration, diagnosis and firmwareupdate
Alternative: TCP/IP connection to the measurement setup for configuration and diagnosis

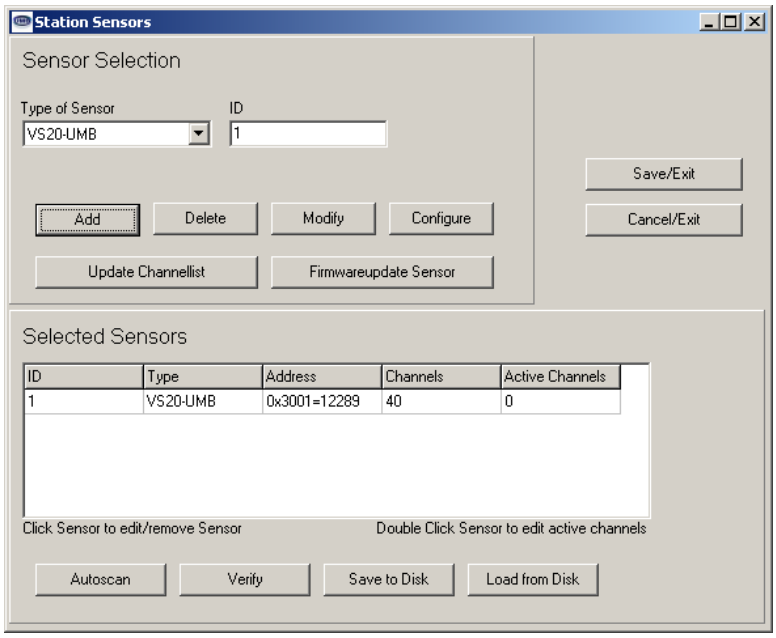
Communication settings / communication

The UMB Configtool works in principle with connections to the measurement setup with connection settings 19200 baud, 8 data bits, 1 stop bit, no parity. A different baud rate is only possible by editing the file ULSPS.INI.
From UMB Configtool version 1.5 in addition to the direct serial connection to the measurement setup a connection using TCP / IP is supported. The TCP / IP communication is enabled in the UMB Configtool by setting 'Edit' ->' Use TCP / IP '. The measurement setup is connected to an RS-232/RS-485 to LAN / WLAN adapter (or similar device). The UMB Configtool supports the connection to a host name or IPv4 address. Because TCP / IP connections as opposed to direct RS232 connections are affected by latency, an additional timeout has to be specified to wait for the responses of the devices in the UMB-setup. The times given in the configuration dialog are ms. For direct LAN connections to IP addresses, values of 100 (ms) are sufficient. For example, targets with name resolution and GPRS connections require values up to 10000 (ms).
Note: Only the communication connection type 'raw' is currently supported (not Telnet emulation).
Note: The set times are also considered for RS232 connections.



Creating a sensor list

Menu: Edit → Sensors:



Choose ‚Type of Sensor'; enter an ID and add it with ‚Add' to the list. With ‚Delete' sensors can be deleted, with ‚Modify' a sensor in the list can be modified. The sensor shown in ‚Sensor Selection' will be deleted or modified.

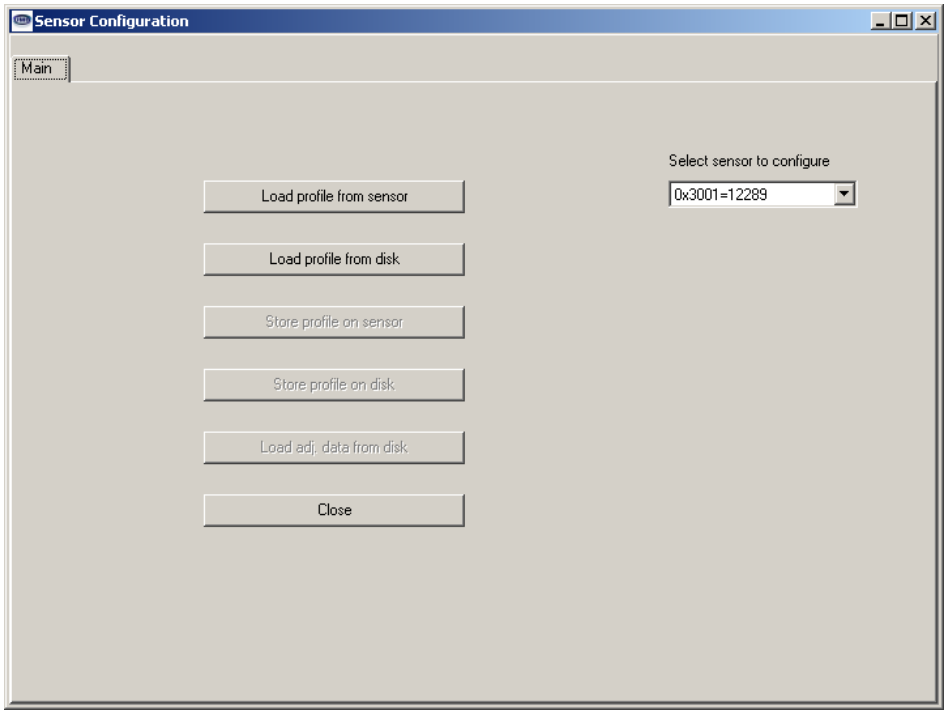
‚Configure' starts the configuration of the sensors in the list. ‚Firmwareupdate Sensor' starts the module for updating the firmware of the selected sensor. ‚Update Channellist' reads the channel list from the connected UMB-module / sensor and inserts new channels into the existing channel list for this device.

Running ‚Autoscan' queries the network for existing UMB devices. ‚Verify' checks, if the devices in the list are responding to communication from the master.

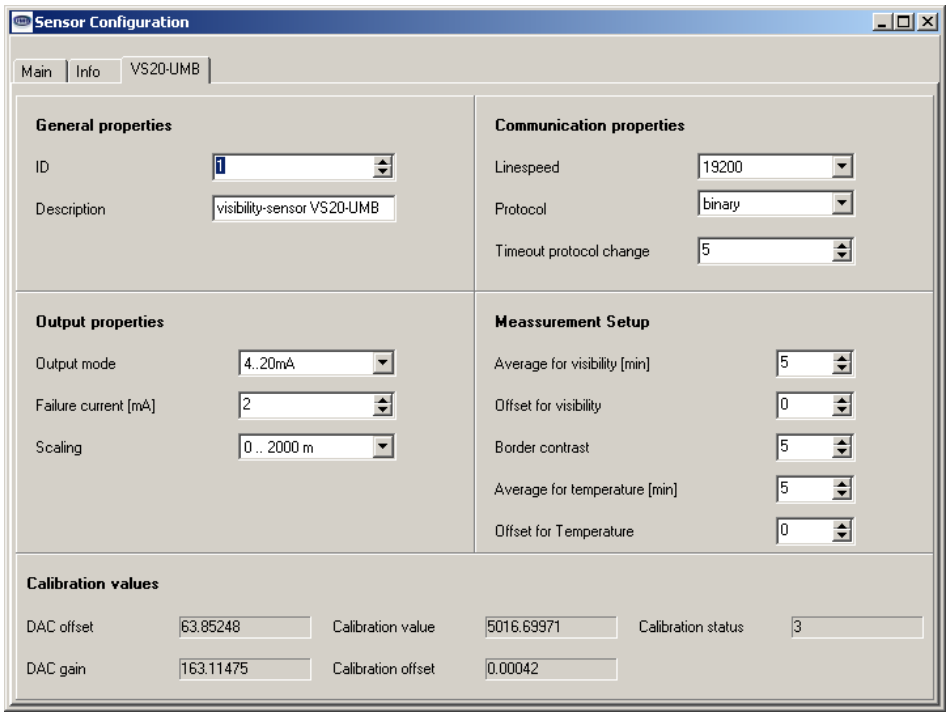
With ‚Save to Disk' the sensor list (including selected channels) can be stored for later reuse (‚Load to Disk').

Configuring sensors

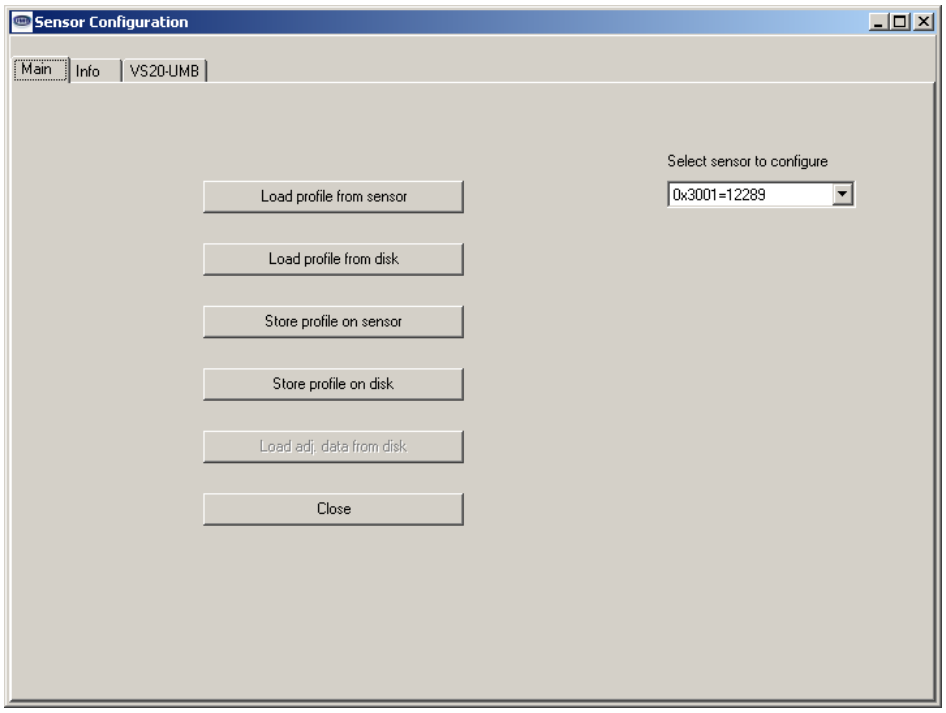
Select a sensor from the list by clicking it, then click ‚Configure'. You will get the following dialogue:



The check box "select sensor to configure" allows to switch to another sensor of the measurement setup.
Load the configuration of the sensor with ‚Load profile from sensor'. Adjust the values in the mask to suit your needs.



After the values have been set, store them on the device with ‚Store profile on sensor'.



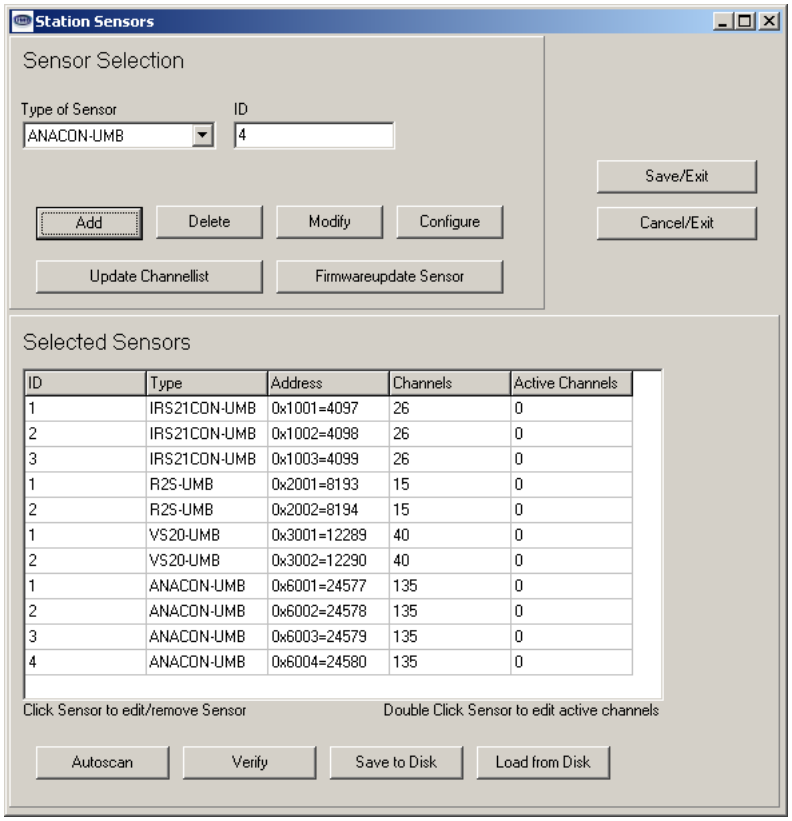
With ‚Store profile on disk' a sensor configuration might be stored on a hard drive. Stored configurations of sensors might be loaded with ‚Load profile from disk'.

Assigning Device ID's

Each device in a UMB network requires a unique address.

Addressing takes place via a 16 bit address. This is divided into a sensor class ID and a device ID.

To avoid address duplication, the device ID's are assigned in ascending order per sensor class (i.e. sensor type):



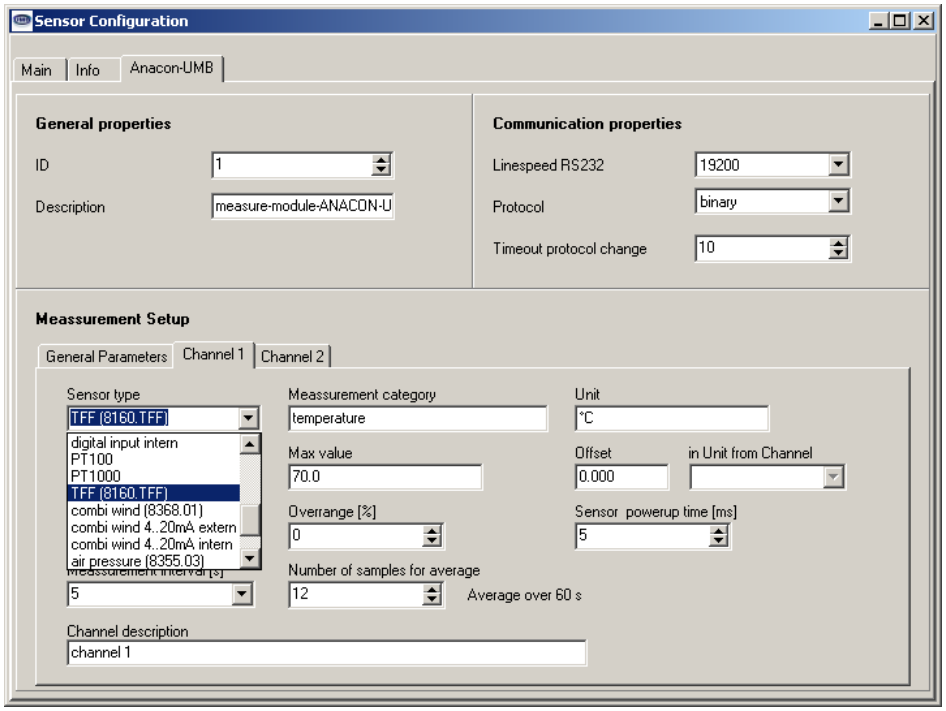
ATTENTION: When configuring new equipment please note that **new devices always have the ID 1!** If there are several sensors of the same type in a network it makes sense to configure the sensors individually with their corresponding ID's **before** commissioning the network.

Configuring ANACON-UMB

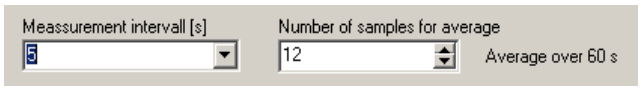
As the ANACON-UMB is a universal measurement transmitter which can be operated with various analogue sensors, this module must always be configured to the connected sensor **before** commissioning.

To do this, connect the module to the power supply (with no additional participants on the bus) and connect to the PC via an RS232 cable (1:1). Load the current configuration via ‘Load profile from Sensor’ as in the section ‘Configure Sensor’:

Select the connected sensor type in ‘Measurement Setup’ under ‘Channel 1’ and ‘Channel 2’:

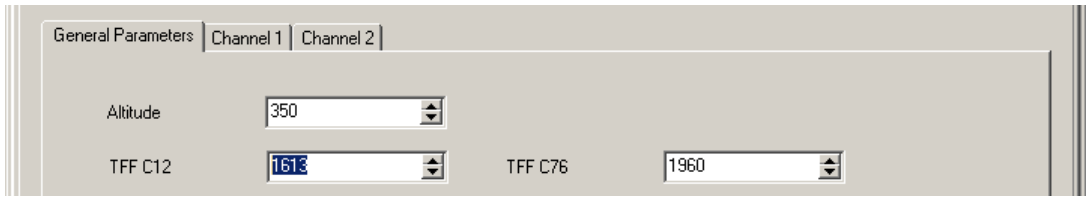


If necessary, set the ID, measurement interval and number of measurements for the min-, max- and average values:



Then save the amended configuration in the module with ‘Store profile on sensor’ under ‘Main’.

ATTENTION!! In the case of the temperature/humidity sensor (TFF 8160.TFF), the values for C12 and C76, which are marked on the sensor head, must be recorded under ‘General Parameters’!!!



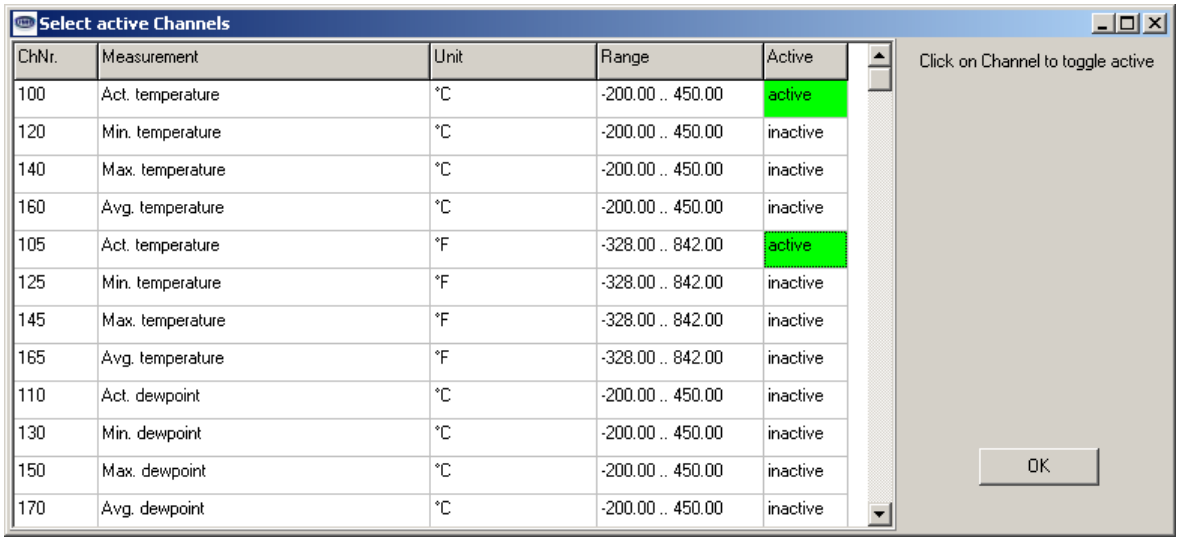
Configuration of sensors operating in different protocols (e.g. MODBUS, SDI12)
If sensors are permanently set to protocols other than UMB (Binary or ASCII) they must be changed first to the UMB protocol if you want to change the configuration with the UMB Configtool.
The procedure for doing this is as follows:

1. Separate measurement setup from the supply voltage
2. In the UMB Configtool select 'Options' -> ‘Switch all sensors temporarily to UMB protocol'
3. Connect the Measurement setup again to the supply voltage.
4. After about 5 seconds (or longer) click ‚Exit' in the UMB Configtool

The sensors can now be configured for the time in minutes set under, timeout for protocol change 'in the sensor settings by UMB Configtool. UMB telegrams e.g. Measurement acquisition, configuration read / write reset the timeout to the time set. After a reset, the sensor is running again in the configured protoco.
Note: After a ‘Store profile on Sensor’ the sensor is reset automatically by the UMB-Configtool and then runs again in the configured protocol.

Query measurement values

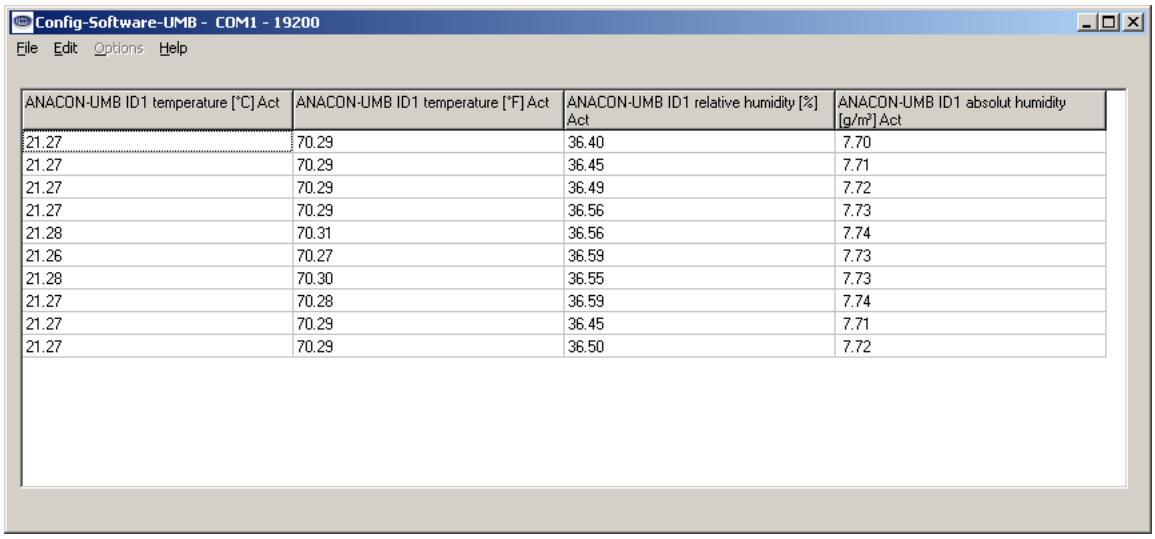
The channel list of a sensor is opened by double clicking a sensor in the sensor list.


Select active Channels
ChNr.
Measurement
Unit
Range
Active
100 Act. temperature °C -200.00 .. 450.00 active
120 Min. temperature °C -200.00 .. 450.00 inactive
140 Max. temperature °C -200.00 .. 450.00 inactive
160 Avg. temperature °C -200.00 .. 450.00 inactive
105 Act. temperature °F -328.00 .. 842.00 active
125 Min. temperature °F -328.00 .. 842.00 inactive
145 Max. temperature °F -328.00 .. 842.00 inactive
165 Avg. temperature °F -328.00 .. 842.00 inactive
110 Act. dewpoint °C -200.00 .. 450.00 inactive
130 Min. dewpoint °C -200.00 .. 450.00 inactive
150 Max. dewpoint °C -200.00 .. 450.00 inactive
170 Avg. dewpoint °C -200.00 .. 450.00 inactive
Click on Channel to toggle active
OK

Here you are able to select the channels for query.

Note: If a channel mentioned in the operating instructions of a sensor is not shown in the sensor list, the channel list of the UMB-Config-Tool for this sensor needs to be updated. It is advised, that you update the Firmware of the sensor before updating the channel list (see chapter Firmware Updates).

The measurement is started in menu ‚File’ → ‚Start measurement’.

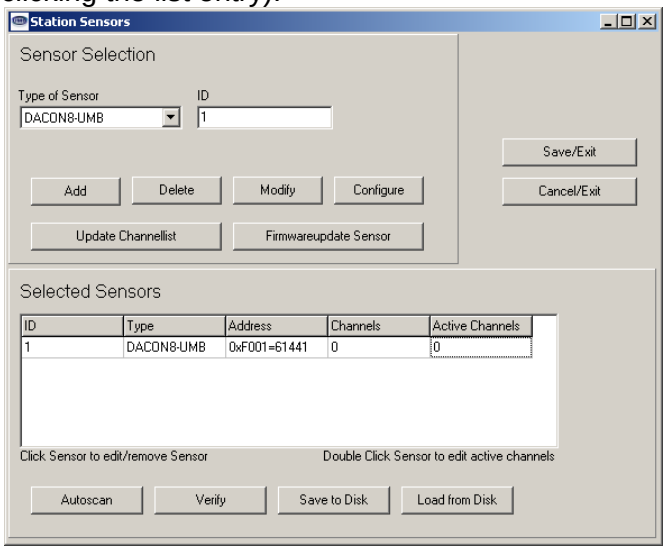


To change the sampling rate of the software click ‚Edit' → ‚Sampling Rate'. A sample rate of 1s does not correspond to the UMB-protocol. In the case of missing answers of the sensor it can lead to erroneous presentation of the received values.

Attention: The selected channels only affect the data query in the UMB-Config-Tool. They do not influence the query of channels in any other software.

Updating the channel list for a sensor

Add the desired sensor to the measurement setup and make it to the selected sensor (by clicking the list entry).



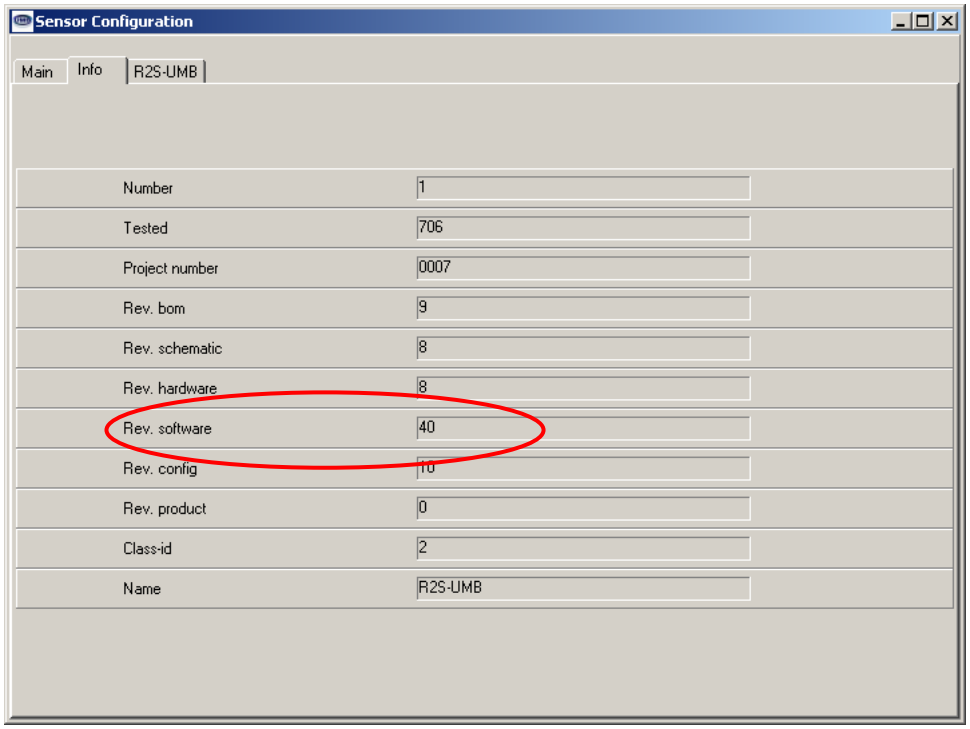
Then choose “Update Channellist”. The UMB-Config-Tool now reads the channels from the desired sensor and sorts the new ones into the channellist. During this operation no channels are deleted, but descriptions and other information of the old channels are replaced by the newly read ones. Also the Type of Sensor might be changed during this operation. This process also works for up to now unused sensortypes. However, such sensors cannot (jet) be configured with the UMB-Config-Tool but querying measurement values works.

Firmware Update

Before implementing any update, please check with Lufft concerning the current firmware status of the UMB products.

Check current firmware status

The current status of the firmware should be checked before updating the firmware. To do so, read the configuration under ‘SensorConfig’. The current version of the software is shown under ‘Rev. software’ on the ‘Info’ page.



40 corresponds to Version V4.0

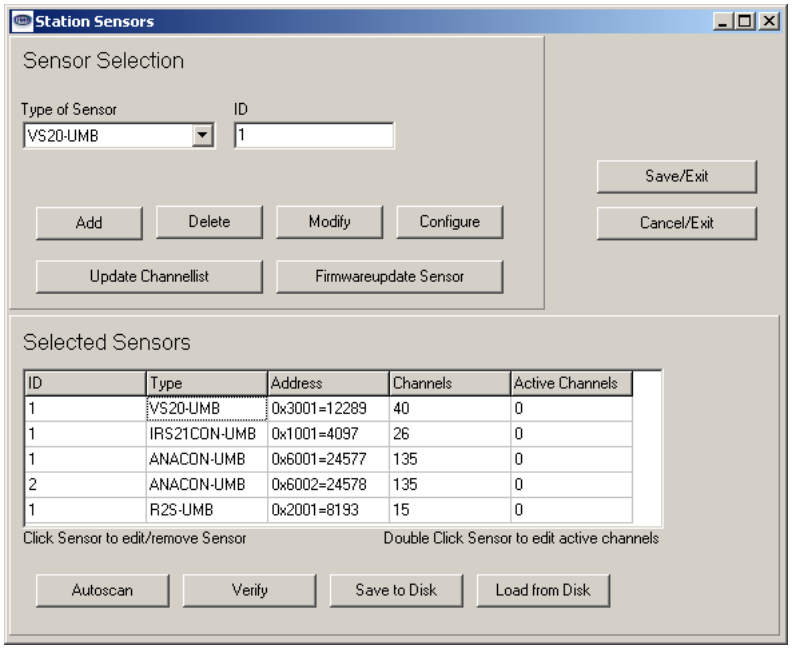
Programme a Sensor Update

Before updating, save the current device firmware (mot file) in the installation directory under ‘Firmware’ (e.g. C:\Programme\Lufft\UMB-Config\Firmware).

ATTENTION: When updating ANACON-UMB or IRS21CON-UMB, the RS232 connection must be plugged **directly** into the module to be updated. Anacon-UMB and IRS21CON-UMB with production date from February 2009 on can also be updated over the bus. ANACON-UMB without frontside RS232 can only be updated over the bus. This requires at least one ISOCON-UMB in the measurement setup.

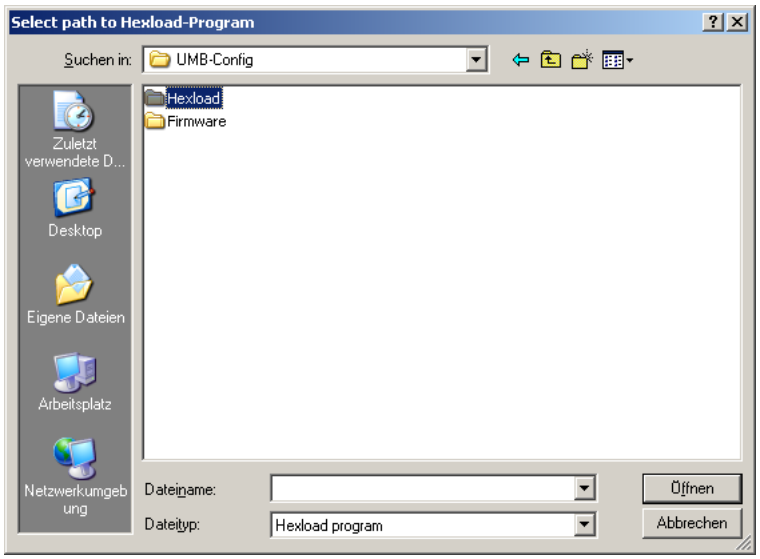
ISOCON-UMB have to be updated manually. The corresponding instructions can be found the section "Updating manually with HexLoad"

Open the sensor list under ‘Edit’ → ‘Sensors’; if necessary, regenerate the list with ‘Autoscan’ or load a stored list with ‘Load from Disk’. With ‘Verify’, check whether the sensors available in the sensor list are also reachable on the network.



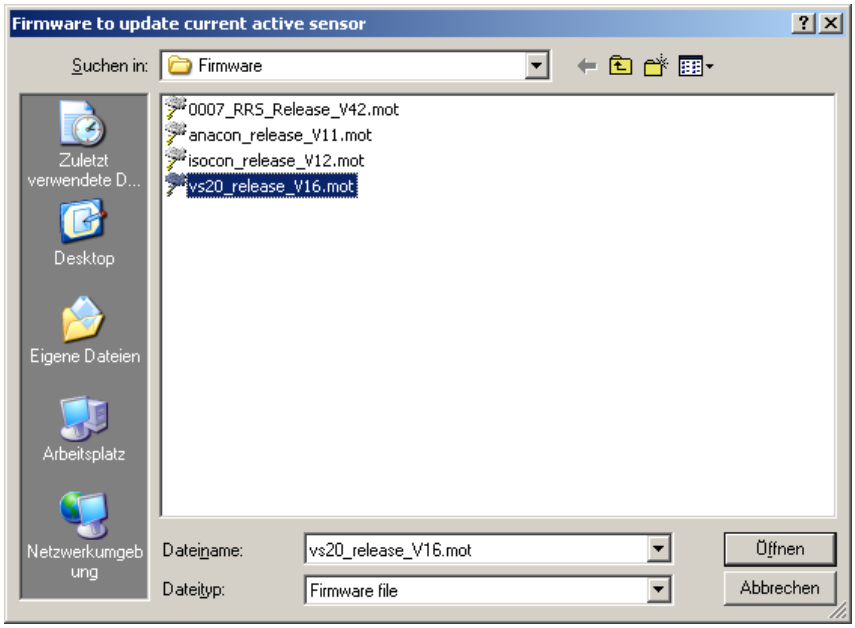
Select the appropriate sensor from the sensor list; the selected sensor is displayed in the ‘Selected Sensors’ section (VS20-UMB in the example).

The update process is started with ‘Firmwareupdate Sensor’. The following window opens when this function of the Config-Tool is used for the first time:

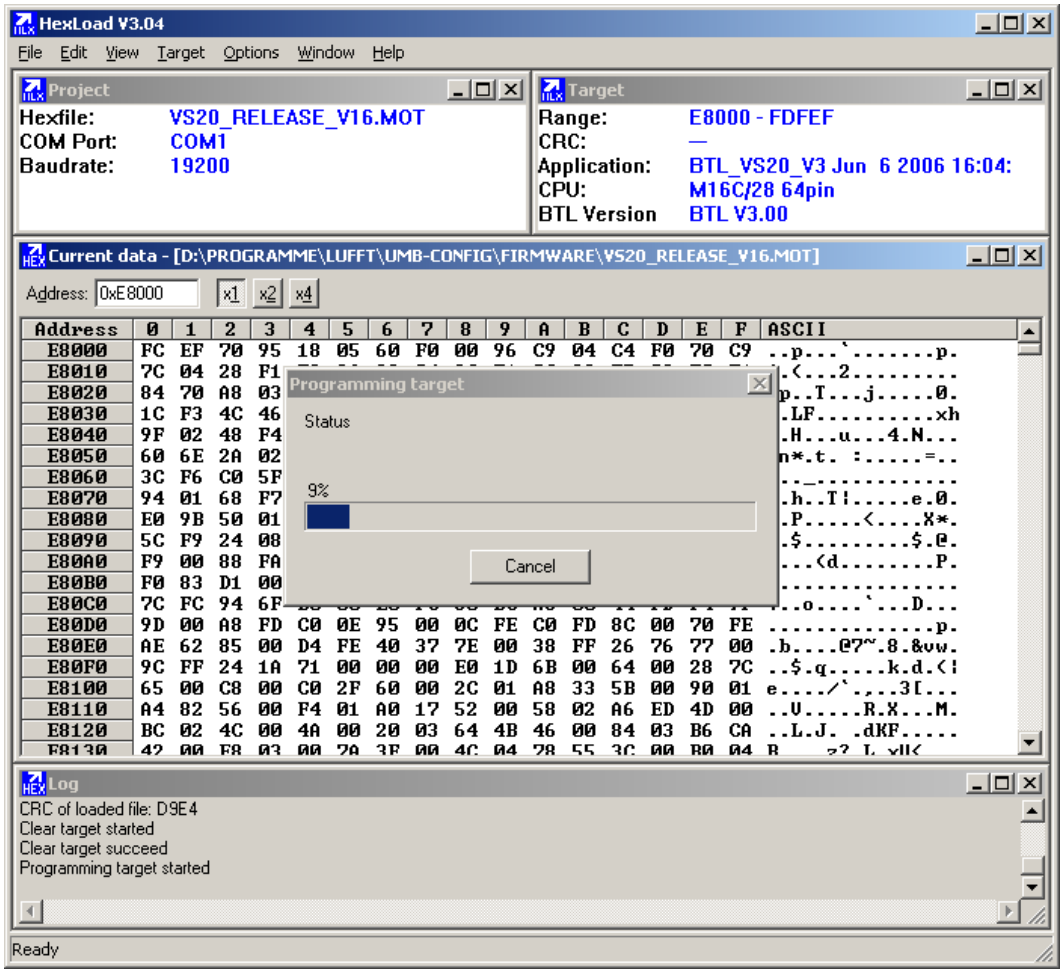


Under ‘Hexload’, select the ‘HexLoad.exe’ file.

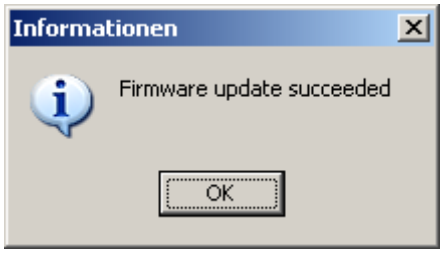
After this (and on all future updates) a window opens in which you select the relevant mot file for the update:



The device is then programmed:



After successful programming the Config-Tool reports as follows:



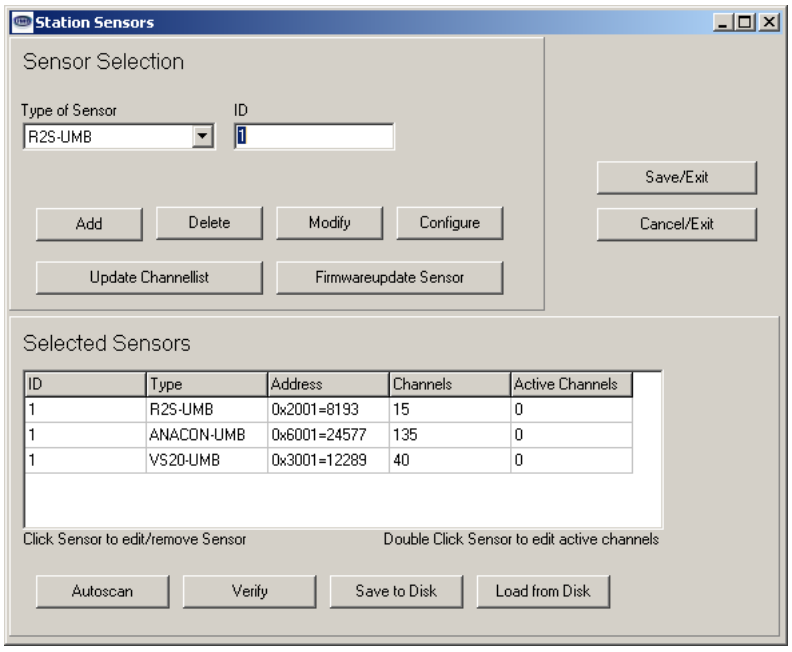
The device then operates with the new firmware.

Possible sources of error

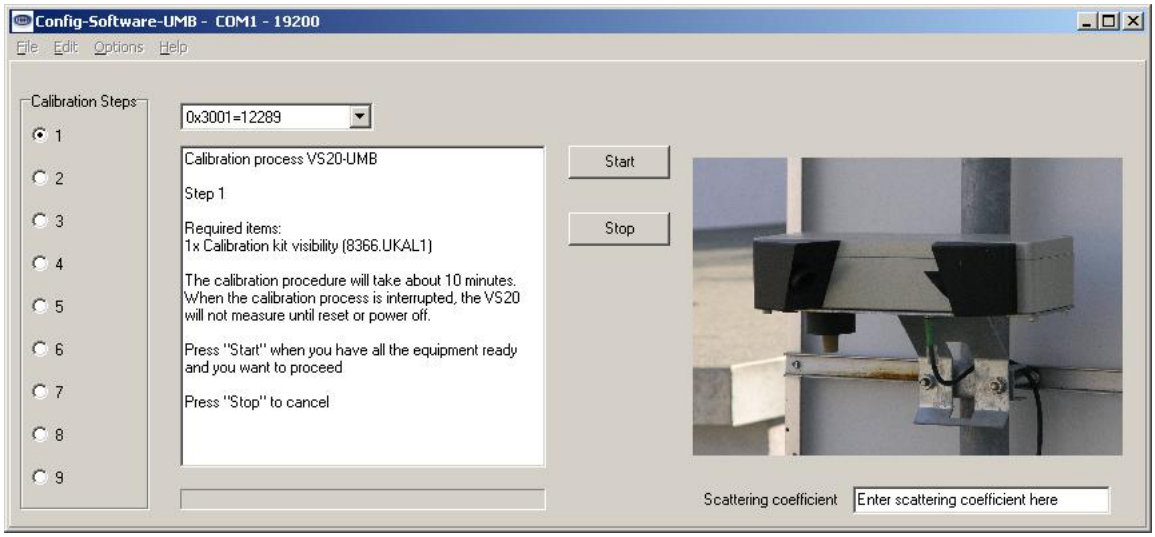
- If a firmware is selected which does not correspond to the sensor, the error message ‘Invalid Firmware-Filename for this module’ is displayed.
- When updating older ANACON-UMB or older IRS21CON-UMB, the RS232 connection must be plugged **directly** into the module to be updated.
- An ISOCON-UMB cannot be updated using this procedure (see page 20, Manual Update with HexLoad).

Calibration of a VS20-UMB visibility sensor

Start by creating a sensor list, containing the VS20-UMB to adjust. Example:



Then chose ‚Save/Exit', ‚Calibration → ‚VS20-UMB'.
Run the calibration according to the description in the text field and like described in the manual from the calibration kit. See picture below.

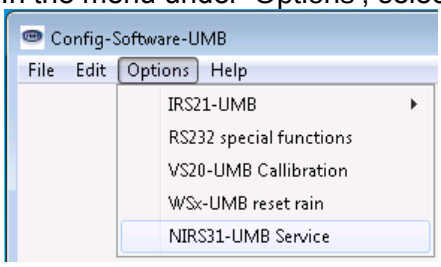


Resetting the rain quantities of WSx-UMB

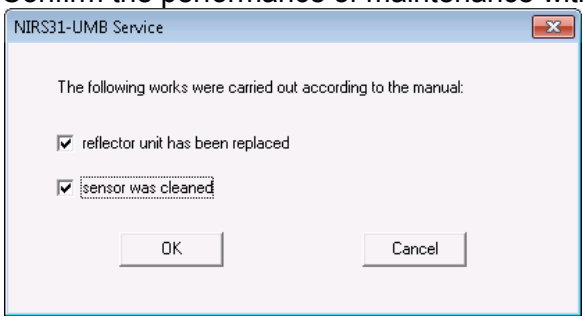
With the menu point 'Extras -> reset WSx-UMB rain sums' the absolute values of the rain quantities in all connected WSx-UMB are set back to 0. It is not necessary to establish a measurement setup with the WSx-UMB. It is however recommended to check if the command has been carried out successfully by reading out the respective values on the corresponding WSx-UMB.

Resetting the service level of NIRS31-UMB

After carrying out maintenance and replacing the reflector unit, the sensor must be informed about this procedure using the UMB-Config-Tool.
In the menu under ‘Options’, select the entry ‘NIRS31-UMB Service’:



Confirm the performance of maintenance with ‘OK’.



Important note: Only use this function if maintenance was actually carried out and the reflector unit was actually replaced.

Miscellaneous

‚Edit’ à ‚Password entry’ allows the user to change in a different user group with advanced possibilities.

Parameters only adjustable by modifying the file ULSPS.INI:
[Settings]
LogToFile=1
Writes the measurement values into a log file, file name see ‚LogFileName’. The column headers are formatted GroupID:ID:Channel (see table of measurement values).

LogFileName=Values.Txt
Basic file name for the log file. Will be expanded by the current date. The software creates a new file for every new date.

CreateDayFiles=1
The registered values are stored in daily files. If the value is 0, they are all stored in one single file.

MaxRetriesForProtocolWhenFailure=2
Number of retries per command, before a failure is reported.

AdditionalTimeoutInMSForSlowConnectionsToHost=0
Time in ms, which is waited additionally to the period of reply specified in the UMB protocol, before for this instruction Timeout is produced. The time specified in the protocol applies to direct 1:1 communication. If the query is made e.g. by GPRS consider using 10000 (ms, corresponds with 10s) here. Note: With 2 repetitions for each instruction (see MaxRetriesForProtocolWhenFailure) it takes 3x10s = 30s, before this instruction is rated as „Failed. Absolutely consider if an ‚Autoscan' is to be accomplished, and/or a measured value query is run with a short interval. This setting will be adjustable in the TCP/IP configuration dialogue.

AutoScanDeltaForFail=3
With ‚Autoscan' for each possible group by address 1 beginning ‚a ‚Verify' command is sent. If the device does not respond the next AutoScanDeltaForFail-1 addresses in ascending order are queried with ‚Verify'. The queried groups are 1 to 14 (group 0 is used for equipment spreading broadcasts, group 15 are masters, here the software itself.

Example: Messurement setup with 1 device of group 2 Id 1 and 1 device of group 3 Id 2. AutoScanDeltaForFail is set to 3.
List of queries (addresses, in Groupid:Id notation):

1:1 – Failed
1:2 – Failed
1:3 – Failed
2:1 – OK
2:2 – Failed
2:3 – Failed
2:4 – Failed
3:1 – Failed
3:2 – OK
3:3 – Failed
3:4 – Failed
3:5 – Failed
4:1 – Failed
4:2 – Failed
4:3 – Failed
5:1 – Failed
5:2 – Failed
5:3 – Failed
6:1 – Failed
6:2 – Failed
6:3 – Failed
7:1 – Failed
7:2 – Failed
7:3 – Failed
8:1 – Failed
8:2 – Failed
8:3 – Failed
9:1 – Failed
9:2 – Failed
9:3 – Failed
10:1 – Failed
10:2 – Failed
10:3 – Failed

11:1 – Failed
11:2 – Failed
11:3 – Failed
12:1 – Failed
12:2 – Failed
12:3 – Failed
13:1 – Failed
13:2 – Failed
13:3 – Failed
14:1 – Failed
14:2 – Failed
14:3 – Failed

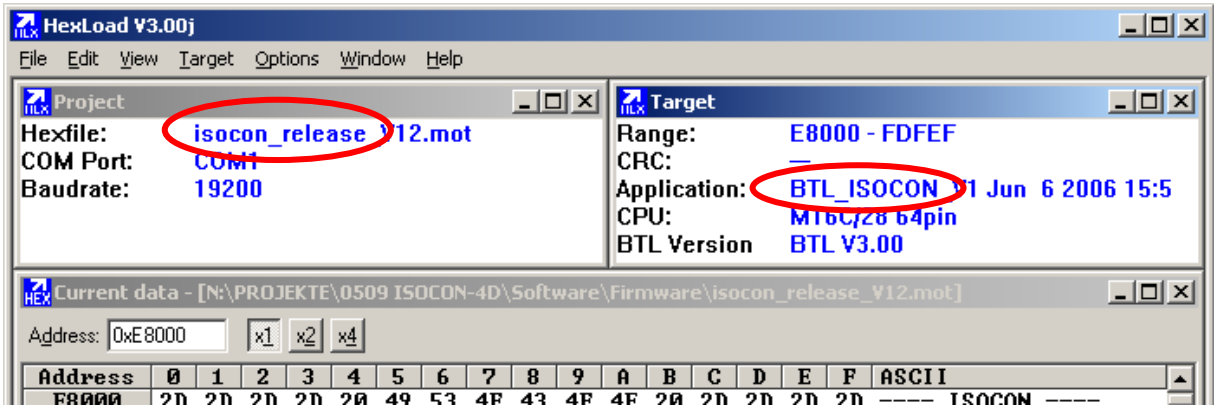
Thus 45 telegrams, in order to find the 2 devices (with this ID). Since every ‚Failed' is repeated 2 times (default setting), that is altogether 131 queries. If now AdditionalTimeoutInMSForSlowConnectionsToHost is set to 10s ‚Autoscan' takes about 25 minutes - so choose the parameters carefully if the ‚Autoscan' function is to be used.

Manual Update with HexLoad

The following procedure must be applied if a sensor update using the Config-Tool was interrupted or in the case of an ISOCON-UMB.

Update ISOCON-UMB

1. Disconnect the power supply and the connected sensor from the ISOCON-UMB module
2. Connect the RS232 interface of the ISOCON-UMB module to the PC
3. Start HexLoad (...\Programme\Lufft\UMB-Config\Hexload\HexLoad.exe)
4. Load the current mot file with 'File' → 'Open'. This **must (!!!)** have the file designation 'isocon_release_Vxx.mot', where 'xx' specifies the version number.
5. Switch on the power supply of the ISOCON-UMB module.
6. 'BTL_ISOCON_Vx....' must now be displayed in HexLoad in the 'Target' window next to 'Application'.


HexLoad V3.00j
File Edit View Target Options Window Help
Project
Hexfile: isocon_release_V12.mot
COM Port: COM1
Baudrate: 19200
Target
Range: E8000 - FDFEF
CRC:
Application: BTL_ISOCON_V1 Jun 6 2006 15:5
CPU: M16C/28 64pin
BTL Version BTL V3.00
Current data - [N:\PROJEKTE\0509 ISOCON-4D\Software\Firmware\isocon_release_V12.mot]
Address: 0xE8000
x1 x2 x4
Address 0 1 2 3 4 5 6 7 8 9 A B C D E F ASCII
E8000 2D 2D 2D 2D 20 49 53 4F 43 4F 4E 20 2D 2D 2D 2D ---- ISOCON ----

7. Start the programming with F9.
8. If programming is successful the message 'Job succeed' is displayed; then exit HexLoad.
9. The module is now ready for operation with the new firmware.

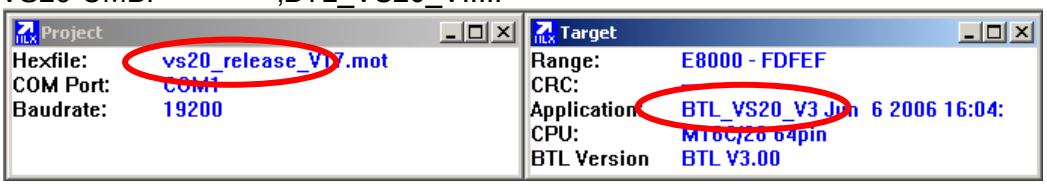
Manual Update of IRS21CON-UMB

If it is necessary to update an ISR21CON-UMB module manually, proceed as in the case of 'Update ISOCON-UMB', where the name of the mot file must correspond to 'IRS21con_Vx_x.mot'.

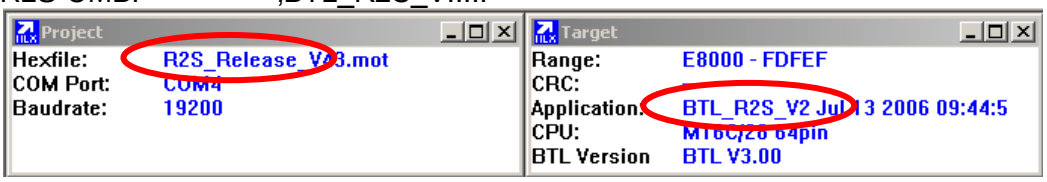
Manual Update of VS20-UMB, R2S-UMB and other UMB-Sensors

1. Disconnect the power supply **of the sensor** from the ISOCON-UMB
2. Switch on the power supply of the ISOCON-UMB module
3. Connect the RS232 interface of the ISOCON-UMB module to the PC
4. Start HexLoad (...\Programme\Lufft\UMB-Config\Hexload\HexLoad.exe)
5. Load the current mot file with 'File' → 'Open'. The file **must (!!!)** have the following designation, where 'xx' specifies the version number.
   - VS20-UMB: 'vs20_release_Vxx.mot'
   - R2S-UMB: 'R2S_Release_Vxx.mot'
   - WSx-UMB: 'WSx_Release_Vxx.mot'
   - IRS31-UMB: 'IRS31_Vxxx.mot'
   - ARS31-UMB: 'ARS31_Vxx.mot'
   - VENTUS-UMB: 'Ventus_Vxx.mot'
   - V200A-UMB 'Ventus_Vxx.mot' (!)
   - NIRS-UMB: 'NIRS_Release_Vxx.mot'

6. Connect the power supply **of the sensor** to the ISOCON-UMB module.
7. The following test must now be displayed in HexLoad in the 'Target' window next to 'Application':
   - VS20-UMB: ‚BTL_VS20_V.....'



   - R2S-UMB: ‚BTL_R2S_V.....'



8. Start the programming with F9.
9. If programming is successful the message 'Job succeed' is displayed; then exit HexLoad.
10. The module is now ready for operation with the new firmware.